ipd4400mdlltsvdTES-10

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Software Version Description (SVD) for the Latitude-Longitude-Time (LLT) Observation Database (MDLLT) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database

Document Version 4.4

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Monterey, CA

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1 SCOPE

1.1 Identification

This Software Version Description (SVD) describes the Latitude–Longitude–Time (LLT) Observation Database (MDLLT) segment, Version 4.4 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MDLLT is a DII COE *shared database* segment for the storage of METOC point observations. This software is designed to run under the Defense Information Infrastructure (DII) Common Operating Environment (COE) release 3.1 on a Hewlett-Packard computer running HP-UX 10.20.

1.2 System Overview

The software described in this document forms a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I — The local data fusion center and principal METOC analysis and forecast system (TESS(NC))
- NITES Version II — The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))
- NITES Version III — The unclassified aviation forecast, briefing, and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))
- NITES Version IV — The Portable subsystem composed of independent Personal Computers (PCs)/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))
- NITES Version V — Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users with METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous, networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is composed of six DII COE-compliant *shared database* segments. Associated with each shared database segment is an Application Program Interface (API) segment. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
LLT Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Climatology Data	MDCLIM	MACLIM

A typical client-server installation is depicted in Figure 1-1 on the next page. This shows the shared database segments residing on a DII COE SHADE database server, with a NITES I or II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using American National Standards Institute (ANSI)-standard Structured Query Language (SQL).

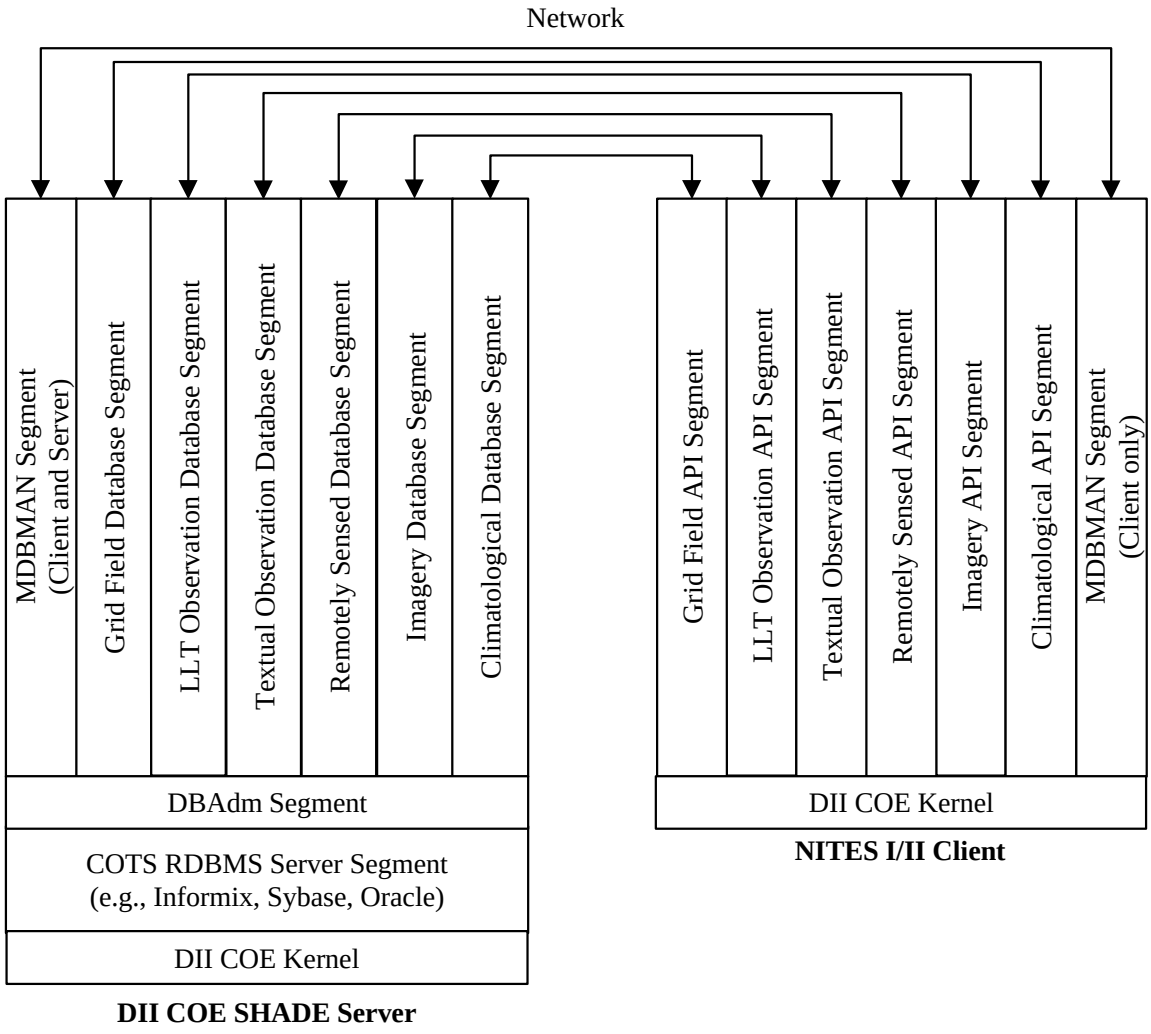

Figure 1-1. TESS(NC) METOC Database Conceptual Organization

The MDLLT segment deals with point observations. These include surface weather observations (hourlies, specials, synoptic observations, METAR reports, Terminal Aerodrome Forecasts (TAFs), etc.), upper air observations (e.g., radiosonde reports, aircraft observations), and ocean soundings (bathythermograph, sound velocity profiles, etc.). For upper air and ocean soundings, the database may also store data derived from the original soundings in the form of upper air profiles and ocean profiles.

1.3 Product Information

1.3.1 Product Qualification

Test and Evaluation (T&E) of the software was performed at the Integrated Performance Decisions (IPD) facility in Middletown, RI, prior to delivery of the software.

1.3.2 Product Restrictions

IPD's intellectual property rights to deliverables defined in this document are covered by the copyright license under the clause in DFARS 252.227-7013 (Nov. 1995).

1.3.3 Product Dependencies

The MDLLT segment is hosted on the following hardware:

- Tactical Advanced Computer, TAC-3 (HP 750/755)/TAC-4 (HP J210)

The operating system requirements are:

- TAC-3/TAC-4: HP-UX 10.20

The kernel requirements are:

- Kernel 3.0.1.0 with patches through P4

The following software must be properly installed prior to loading the MDLLT segment:

- Appropriate operating system (as described above)
- Appropriate DII COE Kernel (as described above)
- DII COE Informix Connect Segment (INFXCN), version 1.0.1.0

2 REFERENCED DOCUMENTS

2.1 Government Documents

Unnumbered 30 September 1997	*Database Design Description for the Tactical Environmental Support System/Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC
ipd4300mdlltipTES-10 9 October 1998	*Installation Procedures (IP) for the Latitude-Longitude-Time (LLT) Observation Database (MDLLT) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*

2.2 Non-Government Documents

None.

3 VERSION DESCRIPTION

3.1 Inventory of materials released

All physical media and associated documentation for the MDLLT segment are listed below.

- MDLLT segment v4.4.0.0 (HP-UX) Installation Tape (4-mm Digital Audio Tape (DAT) cartridge for TAC-3/TAC-4 hardware)
- MDLLT segment v4.3 series IP, dated 9 October 1998
- MDLLT segment v4.4.0.0 SVD, dated 5 February 1999.

3.2 Inventory of Software Contents

A list of all executables and environment files delivered is contained in Appendix A of this document.

3.3 Changes Installed

A list of changes installed since the Preliminary (Developer) Release of the MDLLT software is contained in Appendix B of this document.

3.4 Waivers

There are no waivers associated with this software.

3.5 Adaptation Data

There are no unique-to-site data contained in the MDLLT 4.4.0.0 release.

3.6 Installation Instructions

The MDLLT segment v4.3 series IP referenced in Section 2 of this document provides comprehensive installation instructions for the MDLLT segment. The fully installed segment occupies approximately 1.52 MB of disk space. The software requires a minimum of 128 MB of RAM, with 192 MB recommended.

3.7 Possible Problems and Known Errors

Known problems and errors with MDLLT software are listed in Appendix C of this document.

4 NOTES

4.1 Glossary of Acronyms

AESS	Allied Environmental Support System
ANSI	American National Standards Institute
API	Application Program Interface
COE	Common Operating Environment
DAT	Digital Audio Tape
DII	Defense Information Infrastructure
GCCS	Global Command and Control System
IC4ISR	Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance
IMOSS	Interim Mobile Oceanographic Support System
INFXCN	Informix Connect Segment
IP	Installation Procedures
IPD	Integrated Performance Decisions
JMCIS	Joint Maritime Command Information System
JMS	Joint METOC Segment
LLT	Latitude-Longitude-Time
MDLLT	LLT Observation Database Segment of the TESS(NC) METOC Database
METOC	Meteorology and Oceanography
MIDDS	Meteorological Integrated Data Display System
NC	Next Century
NITES	Navy Integrated Tactical Environmental Subsystem
PC	Personal Computer
PTR	Program Trouble Report

SQL	Structured Query Language
SVD	Software Version Description
T&E	Test and Evaluation
TAF	Terminal Aerodrome Forecast
TESS	Tactical Environmental Support System

Appendix A - List of Executables and Environment Files

A.1 File Structure for HP-UX Delivery

```
total 14
drwxrwxr-x   2 sysadmin   COE     1024  Feb 12 12:39 bin
drwxrwxr-x   2 sysadmin   COE     1024  Feb 12 12:39 data
drwxrwxr-x   3 sysadmin   COE     1024  Feb 12 12:39 install
drwxrwxr-x   2 sysadmin   COE     1024  Feb 12 12:39 Scripts
drwxrwxr-x   2 sysadmin   COE     1024  Feb 12 12:42 SegDescrip


/h/MDLLT/bin:
total 6
-r-xr-xr-x   1 sysadmin   COE      263  Feb 12 10:48 MDLLTGetDBSize

/h/MDLLT/data:
total 2834
-r--r--r--   1 sysadmin   COE       34  Feb 12 10:48 mdllt_aoi.txt
-r--r--r--   1 sysadmin   COE      375  Feb 12 10:48 mdllt_colareas.txt
-r--r--r--   1 sysadmin   COE     3466  Feb 12 10:48 mdllt_aoirect.txt
-r--r--r--   1 sysadmin   COE    26196  Feb 12 10:48 mdllt_cannedSQL.txt
-r--r--r--   1 sysadmin   COE     2667  Feb 12 10:48 mdllt_canned2.txt
-r--r--r--   1 sysadmin   COE     3354  Feb 12 10:48 mdllt_dataTypeToSQL.txt
-r--r--r--   1 sysadmin   COE   513411  Feb 12 10:48 mdllt_icao.txt
-r--r--r--   1 sysadmin   COE     5405  Feb 12 10:48 mdllt_dbbuoy.txt
-r--r--r--   1 sysadmin   COE      274  Feb 12 10:48 mdllt_obsubtypes.txt
-r--r--r--   1 sysadmin   COE       86  Feb 12 10:48 mdllt_obtypes.txt
-r--r--r--   1 sysadmin   COE   864952  Feb 12 10:48 mdllt_stationid.txt

/h/MDLLT/install:
total 18
-r-xr-xr-x   1 sysadmin   COE     4770  Feb 12 10:48 install_mdllt
-r-xr-xr-x   1 sysadmin   COE      569  Feb 12 10:48 deinstall_mdllt
drwxrwxr-x   2 sysadmin   COE     1024  Feb 12 12:39 sql


/h/MDLLT/install/sql:
total 106
-r-xr-xr-x   1 sysadmin   COE     1988  Feb 12 10:48 MDLLT_ObSubTypes_Scripts
-r-xr-xr-x   1 sysadmin   COE     2499  Feb 12 10:48 MDLLT_AOI_Scripts
-r-xr-xr-x   1 sysadmin   COE     2834  Feb 12 10:48 MDLLT_ColAreas_Scripts
-r-xr-xr-x   1 sysadmin   COE     1861  Feb 12 10:48 MDLLT_ObTypes_Scripts
-r--r--r--   1 sysadmin   COE       81  Feb 12 10:48 mdllt_aoi.cmd
-r-xr-xr-x   1 sysadmin   COE     1551  Feb 12 10:48 mdllt_cds_scripts
-r-xr-xr-x   1 sysadmin   COE     5382  Feb 12 10:48 MDLLT_crttable_Scripts
-r-xr-xr-x   1 sysadmin   COE    11281  Feb 12 10:48 MDLLT_stationID_Scripts
-r-xr-xr-x   1 sysadmin   COE     7644  Feb 12 10:48 MDLLT_dsDir_Scripts
-r--r--r--   1 sysadmin   COE       97  Feb 12 10:48 mdllt_dataTypeToSQL.cmd
-r--r--r--   1 sysadmin   COE       10  Feb 12 10:48 mdllt_drop_file_inf
-r--r--r--   1 sysadmin   COE       90  Feb 12 10:48 mdllt_cannedSQL.cmd
-r--r--r--   1 sysadmin   COE       92  Feb 12 10:48 mdllt_dsDir.cmd
-r--r--r--   1 sysadmin   COE       88  Feb 12 10:48 mdllt_canned2.cmd
-r--r--r--   1 sysadmin   COE       92  Feb 12 10:48 mdllt_colareas.cmd
-r--r--r--   1 sysadmin   COE       86  Feb 12 10:48 mdllt_obtypes.cmd
-r--r--r--   1 sysadmin   COE       89  Feb 12 10:48 mdllt_icao.cmd
-r--r--r--   1 sysadmin   COE       92  Feb 12 10:48 mdllt_obsubtypes.cmd
```

```
-r--r--r--   1 sysadmin   COE       93  Feb 12 10:48 mdllt_stationid.cmd
-r--r--r--   1 sysadmin   COE       86  Feb 12 10:48 mdllt_buoy.cmd
-rw-r--r--   1 sysadmin   COE       18  Feb 12 12:40 mdllt_create_file_inf

/h/MDLLT/Scripts:
total 10
-r-xr-xr-x   1 sysadmin   COE     1221  Feb 12 10:48 .cshrc
-r-xr-xr-x   1 sysadmin   COE       86  Feb 12 10:48 .cshrc.MDLLT

/h/MDLLT/SegDescrip:
total 28
-rw-r--r--   1 sysadmin   COE       28  Feb 12 10:47 VERSION
-rw-r--r--   1 sysadmin   COE      958  Feb 12 10:47 ReleaseNotes
-rw-r--r--   1 sysadmin   COE      372  Feb 12 10:48 SegName
-rwxr-xr-x   1 sysadmin   COE      655  Feb 12 10:48 DEINSTALL
-rwxr-xr-x   1 sysadmin   COE     2127  Feb 12 10:48 PostInstall
-rw-rw-rw-   1 sysadmin   other    141  Feb 12 12:42 Installed

-rw-r--r--   1 sysadmin   COE      251  Feb 12 13:30 SegInfo
-rw-rw-r--   1 sysadmin   COE     1526  Feb 12 13:30 FileAttribs
-rw-rw-rw-   1 sysadmin   COE      128  Feb 12 13:30 Validated
```

Appendix B - Changes/Updates Since Preliminary Release

This release made the following changes:

Pri	PTR #	Summary
2	132	Block Station IDs in LLT database are invalid.
2	170	ASW Domain is not supported in current implementation of TEDS.
3	124	The data file "station.data" contains an error. The longitude is –816, which is an invalid entry. It has been changed to –81.6 in the flat file. This change should be made in the database.
3	194	Upper air reports parts b and d do not have heights, need to change primary key from height to pressure.
3	195	Need to add station elevation to fixed station reports.
3	197	Buoy needs outer join.
3	206	Obs with negative time values are getting into the database
3	282	Short int is not big enough to handle horizontal visibility in meters.
4	156	Duplicate entries in the Station ID table.

Appendix C - Known Problems and Errors

Pri	PTR #	Summary
	307	Missing Station IDs.
3	73	Ship speed and direction need to be added to bathy, buoy, and synoptic reports.
4	294	METAR retrieval is too slow.

Detailed Program Trouble Reports (PTRs) are contained on the following pages.

Program Trouble Report

Report Number: **307**

Originator Information

Author: Christine Raulli
Site: NP
Phone:
Cross Ref#:

Created: 02/12/99
Employer:
E-mail: craulli

System Information

Priority	Category	Type	Status
	Problem	Software	

Open Systems

System	Version	Platform	Date
TESS(NC)-LLT	4.3	HPUX 1020	02/12/99

Modules: MDLLT

Module Functions or other Identifying Keywords:

Description of the Problem

One Line Problem Summary:
Missing Station Ids

Steps Required to Duplicate the Problem:

Repeatable? Yes **Likelihood of Occurrence:**

Problem Description:
PTR XL00005 contains a list of missing ICAO Stations. Most of the named stations were found at http://www.airnav.com/cgi-bin/airport-info .
They have been added to the ICAO table.

The following ICAO's have not been found:
KDMH KGNR KGNA MDHE KSNT KGSM SYCJ KFGN KOQT KCQC K9 TXKF KMQE KCDJ KSPD MMPA

Originator's Recommendation:

PTR Assignment (if known)

Responsible Engineer(s):

Verified By: **Date Verified:**

Program Trouble Report

Report Number: **73**

Originator Information

Author: Michael Sacauskis
Site: MC
Phone: 408.375.2693
Cross Ref#:
Created: 05/06/98
Employer: IPD
E-mail: msacausk

System Information

Priority	Category	Type	Status
3	Problem	Software	New

Open Systems

System	Version	Platform	Date
TESS(NC)-LLT	4.1	HPUX 1020 and NT 4.0 (both)	05/06/98
TESS(NC)-LLT	4.1	HPUX 1020 and NT 4.0 (both)	05/06/98

Modules: MDLLT

MALLT

Module Functions or other Identifying Keywords:

Description of the Problem

One Line Problem Summary:
Ship speed and direction need to be added to bathy, buoy and synoptic reports.

Steps Required to Duplicate the Problem:

Repeatable? Yes **Likelihood of Occurrence:**

Problem Description:
Schema for buoy, baths, and ship synoptic reports need ship speed and direction added. API software needs to modified to retreive fields as well.

Originator's Recommendation:
Add fields to apropriate table definitions so that fields make code mods to store,retrieve and update the fields in the API.

PTR Assignment (if known)

Responsible Engineer(s):
Michael Sacauskis
Verified By: **Date Verified:**

Program Trouble Report

Report Number: **294**

Originator Information

Author: Michael Frost
Site: MC
Phone:
Cross Ref#:
Created: 12/29/98
Employer:
E-mail: mfrost

System Information

Priority	Category	Type	Status
4	Problem	Software	

Open Systems

System	Version	Platform	Date
TESS(NC)-LLT	4.3	HPUX 1020 and NT 4.0 and SOLARIS 2.6(all)	12/29/98

Modules: MALLT,MDLLT

Module Functions or other Identifying Keywords:

Description of the Problem

One Line Problem Summary:
METAR retrieval too slow

Steps Required to Duplicate the Problem:
Insert lots of METARS, then retrieve lots of METARS.
Repeatable? Yes **Likelihood of Occurrence:**

Problem Description:
METAR retrieval too slow

Originator's Recommendation:

PTR Assignment (if known)

Responsible Engineer(s):
Ned Hole
Denise Reniere
Verified By: **Date Verified:**